The role of exercise after osteoporotic vertebral fracture

Sarah Leyland, Emma Clark, Andrew Gray

Osteoporotic vertebral fractures that are stable, non-traumatic, unrelated to other underlying pathologies and associated with low bone density, vary enormously in terms of the level of symptoms and impact on quality of life. Patients may present for 'symptomatic control' with acute or chronic pain, loss of height caused by a shortening of the trunk and increased kyphosis-creating problems with activities of daily living. Symptoms can include: breathlessness, bloating and abdominal distension, pressure on the bladder and dysuria. In addition, and increasingly, incidental vertebral fractures are also being identified during imaging for other reasons, and reported on. These fractures are important indicators of bone fragility and need to be followed up where appropriate. Osteoporosis drug therapies can reduce the risk of a further fracture. For example, it is well recognised that one in five women with incidental osteoporotic vertebral fractures will have another within five years[1], and one in ten will have a limb fracture within a similar period[2]. Medication is available to reduce this risk by half. As well as increased risk of further fragility fractures; people with osteoporotic vertebral fractures have a reduced quality of life (worse than that after hip fracture). This is mainly due to a reduction in levels of physical function. Although patients with symptomatic vertebral fractures are more likely to seek help and receive rehabilitation advice (based about exercise and movement), people with incidental osteoporotic vertebral fractures will have a 'self - perception' about how this might affect the exercise and movement that they should perform. Health professionals can confuse patients with inconsistent advice based upon anecdotal judgements about what is effective and safe.

Vertebral fractures can be puzzling and inconsistent with regards to the level of symptomatology. It is not known why some people have acute pain and others are pain free or why some patients have chronic long-term pain and symptoms. This may be related to mechanical changes that predispose to muscle spasm, ligament strain and arthritic changes within the spine. The occurrence of multiple fractures with severe deformity of the vertebral bodies may in part determine the severity of chronic symptoms. However, the reason why some people have an acute episode of pain and others have none remains unclear. What precipitates these fractures is also uncertain. Although some vertebral fractures are the result of a fall many are not; there is potential for some movements such as forward flexion especially loaded flexion to cause a vertebral fracture.[3] There is however little clinical evidence with regards specific activities, movements or exercises precipitating a vertebral fracture. It is also important to realise that many of the proposed 'at risk' movements are unavoidable and form part of normal activities of daily life.

What information and advice should be given to patients after a vertebral fracture? What is the role of exercise in terms of effectiveness to promote bone strength and reduce fracture risk for these patients and also to help reduce pain or

disability? What recommendations should clinicians give their patients in terms of safety with concerns that specific exercises or movements might in themselves risk further fractures particularly in the spine? With little conclusive evidence available in relation to these issues, the default for clinicians has been to be cautious and conservative. There is a tendency to recommend limited exercise interventions, especially any 'impact' type of exercise. Bending forward flexion movements and lifting any weight or load that could potentially put stress or strain on the vertebral bodies and increase fracture risk are also avoided. The consequences of this approach have been high levels of anxiety and uncertainty for patients diagnosed with a vertebral fracture. This often decreases their level of physical activity and exercise and also participation in normal day-to-day activities that involve what are perceived as potentially unsafe movements.

The Royal Osteoporosis Society (formally The National Osteoporosis Society), recognising these problems and the need for authoritative standardised recommendations to help patients with osteoporosis and particularly after vertebral fracture, have published an expert consensus statement on Physical Activity and Exercise for Osteoporosis to help health professionals improve their practice.[4] This includes detailed discussion about appropriate types of impact exercise and muscle resistance exercise where often the potential benefits far outweigh any risks including fracture; the need to focus on 'how' rather than 'don't' when advising about lifting a load or forward flexion. Acknowledging patient fears and addressing them as well as providing support, needs to be a core part of care provided. The charity has also developed useful information resources for patients including video clips and fact sheets to answer common questions and provide practical information including techniques and movements to protect the spine whilst continuing with normal daily activities.[5]

The main principle underpinning this new statement is the need for a positive, encouraging approach. This will enable at risk patients and those with a diagnosed vertebral fracture, to continue with normal activities and gradually increase their levels of exercise whilst working within their pain and functional limits. With little evidence that taking part in physical activity and exercise causes spinal or other fractures, an active participatory approach will facilitate and maximise both physical and psychological rehabilitation. Exercise and keeping active will not only help to prevent further bone loss and promote bone strength but also increase muscle strength in the spine. This may help with acute and chronic back pain and the postural problems associated with vertebral fractures. Finally, exercises to improve muscle and balance strength should reduce the risk of further falls and related fractures and are an essential form of any rehabilitation programme. Appropriate analgesia as well as other practical interventions will optimise pain control. Positive and practical information about exercise and movement, provided promptly and consistently after vertebral fracture diagnosis, with or without problematic symptoms, is essential to ensure effective rehabilitation and maintenance of a physically active lifestyle including specific exercise interventions. This new statement will make an important contribution and help us to improve our practice with these patients.

References:

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